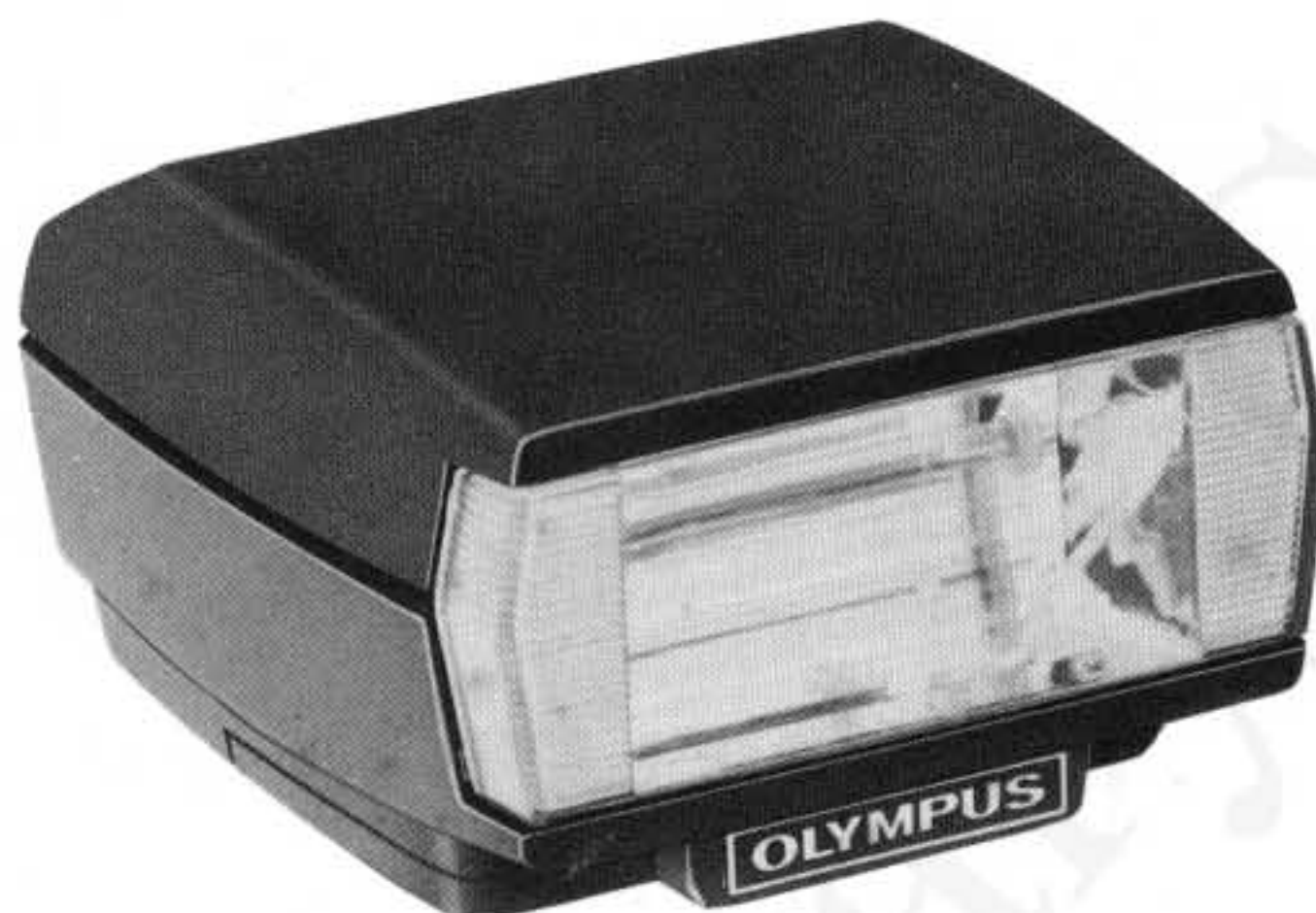


TECHNICAL GUIDE



MODEL

Electronic Flash T20

MAIN SPECIFICATIONS

- **Type** Energy-saving, series-circuit type TTL Centralized Control (TTL AUTO) flash unit (with normal auto and manual capability).
- **Guide Number** 20 (ASA 100, meters) or 32 (ASA 25, feet).
- **Coverage Angle** 40° vertical, 58° horizontal (covers picture area of 35mm lens).
- **Flash Duration** 1/40,000 — 1/1,000 sec.
- **Recycling Time** 0.2—10sec. with AA alkaline batteries on TTL AUTO and NORMAL AUTO (varies depending on flash-to-subject distance).
- **Flashes per set of AA Alkaline Batteries** 120 — 500 on TTL AUTO and NORMAL AUTO (varies depending on flash-to-subject distance).
- **Color Temperature** 5,800° K
- **Connection to Camera**
 - Mechanical Clip-on type (via accessory shoe).
 - Electrical Direct contact (hot shoe).
- **Calculator Dial** Reversible plate type — blank for Olympus OM-2 (TTL Auto/Manual); auto/manual calculator dial for OM-1, OM-10 and non-OM cameras).
- **TTL AUTO (with OM-2 only)**
 - Aperture Setting Continuous, accords with aperture ring setting of camera lens.
 - SBC Sensor Acceptance Angle Accords with view of angle of camera lens.
 - Working Range 0.25—16m (10in.—53ft.) (ASA 100, F 1.2 lens).
 - TTL AUTO Check Neon-flicker indication. Viewfinder indication contact provided.
 - Ready Light Check Charge lamp and the viewfinder indication contact.

- **NORMAL AUTO**
 - Aperture Setting 2 apertures (F4 and F8 at ASA 100).
 - Normal Auto Sensor Approx. 20° Acceptance Angle
 - Working Range 1 — 5m (3.3ft.—17ft.) at F4, 0.5 — 2.5m (20in. — 8ft.) at F8.
 - AUTO & Ready Light Check Same as TTL AUTO and Ready Light Check above.
- **MANUAL**
 - Guide Number 20 (ASA 100, m) or 32 (ASA 25, ft.) on full power flash.
 - Ready Light Check Charge lamp and the viewfinder indication contact.
- **Aperture/Distance Scale (ASA 100, meters).**
For Guidance Only

F1.2	3.3~16.7	F 5.6	0.7 ~3.5
F1.4	2.8~14.1	F 8	0.5 ~2.5
F2	2 ~10	F11	0.35~1.8
F2.8	1.4~ 7.1	F16	0.25~1.3
F4	1 ~ 5	F22	0.18~0.88

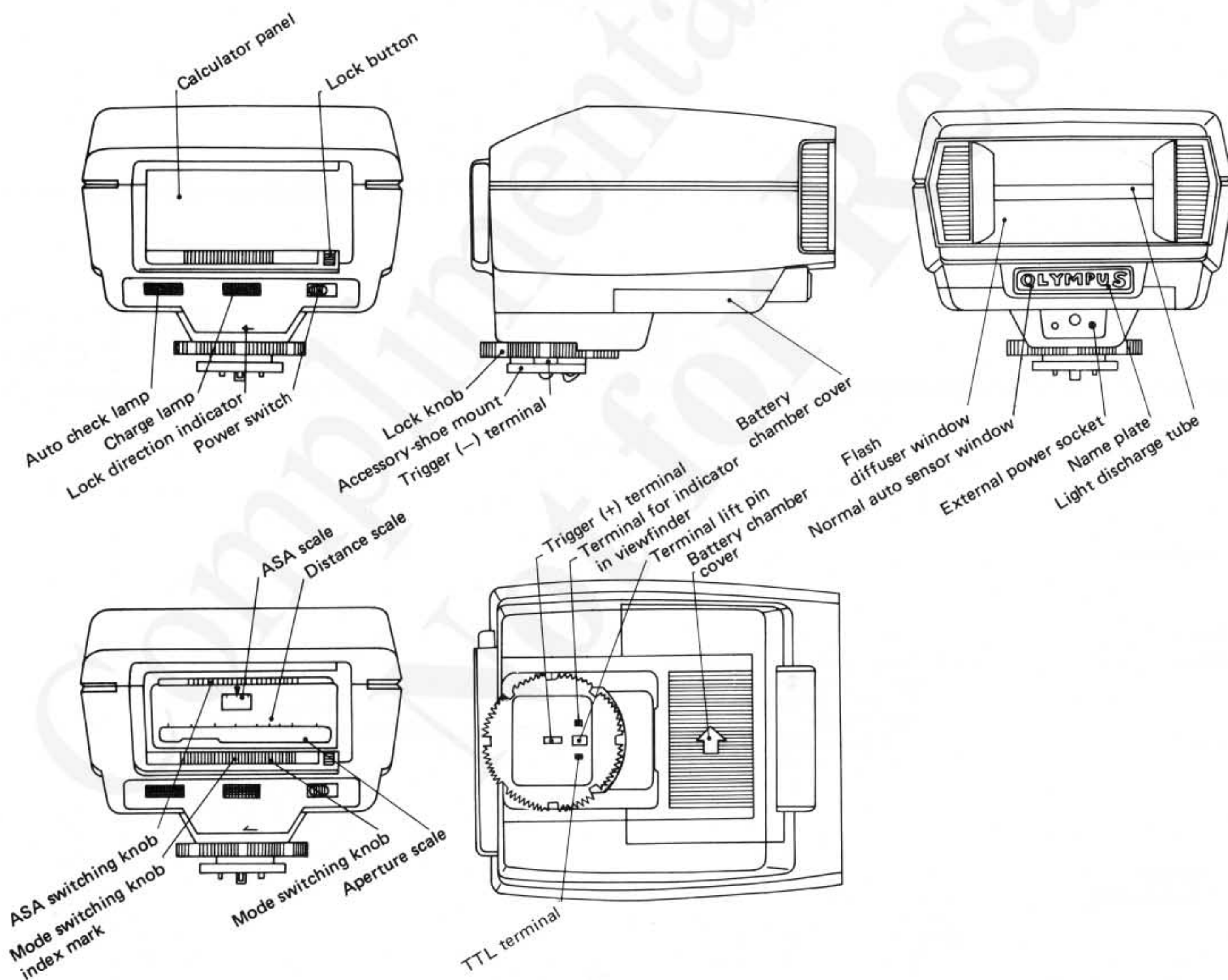
*Two types of T20 are available, each incorporating a calculator panel indicated in meters or in feet.

- **Termination of Light Emission** Instantaneous with power switch off: T20 will not fire even when fully charged.
- **Power Source** ① Two 1.5V AA 'penlight' batteries (incl. Ni-Cd batteries). ② AC house current via Electronic Flash AC Adapter 2.
- **Dimensions** 77(D) x 68(W) x 57(H) mm, 160g (less batteries)
(3 x 2-11/16 x 2-1/4", 5.6 oz.).

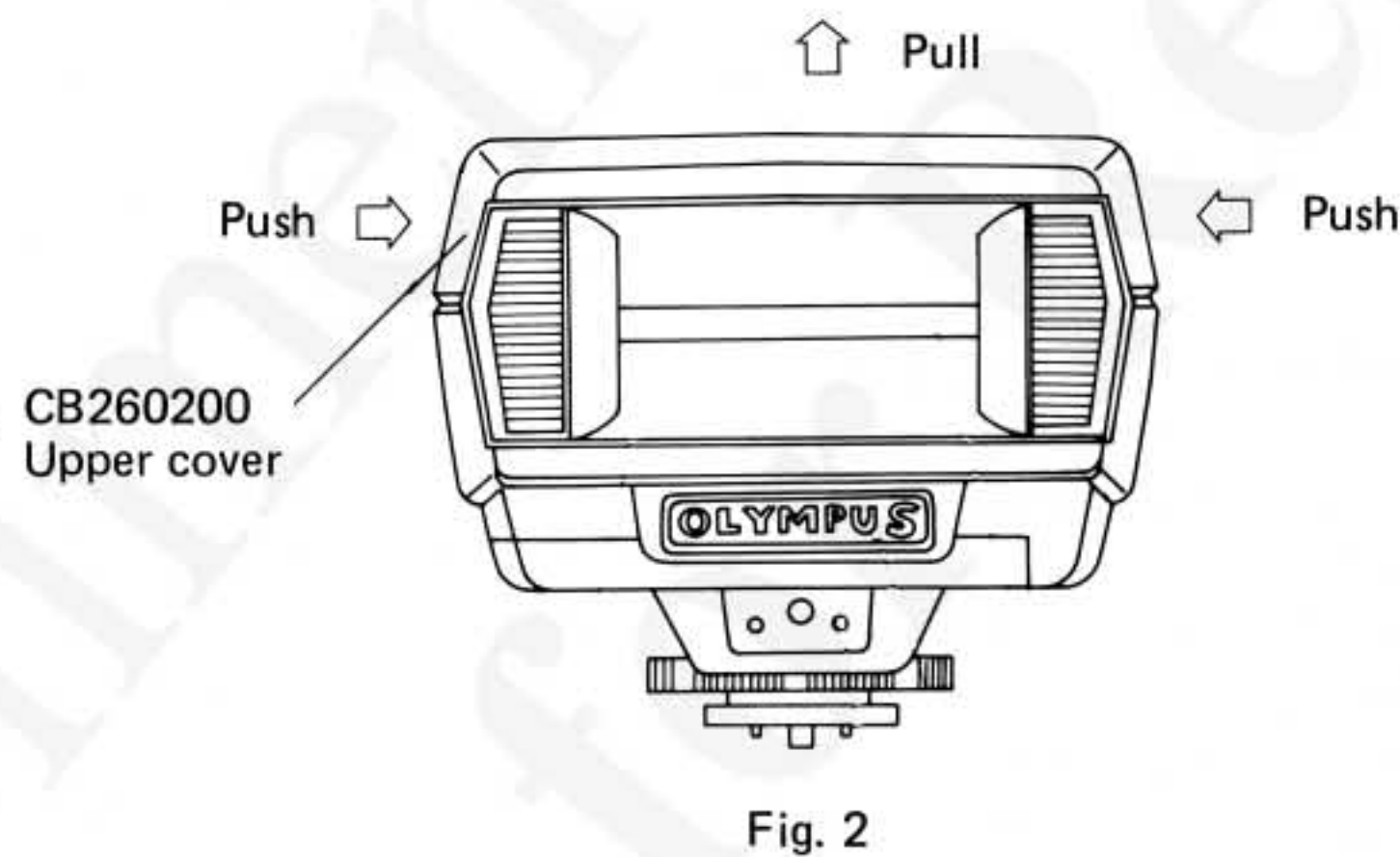
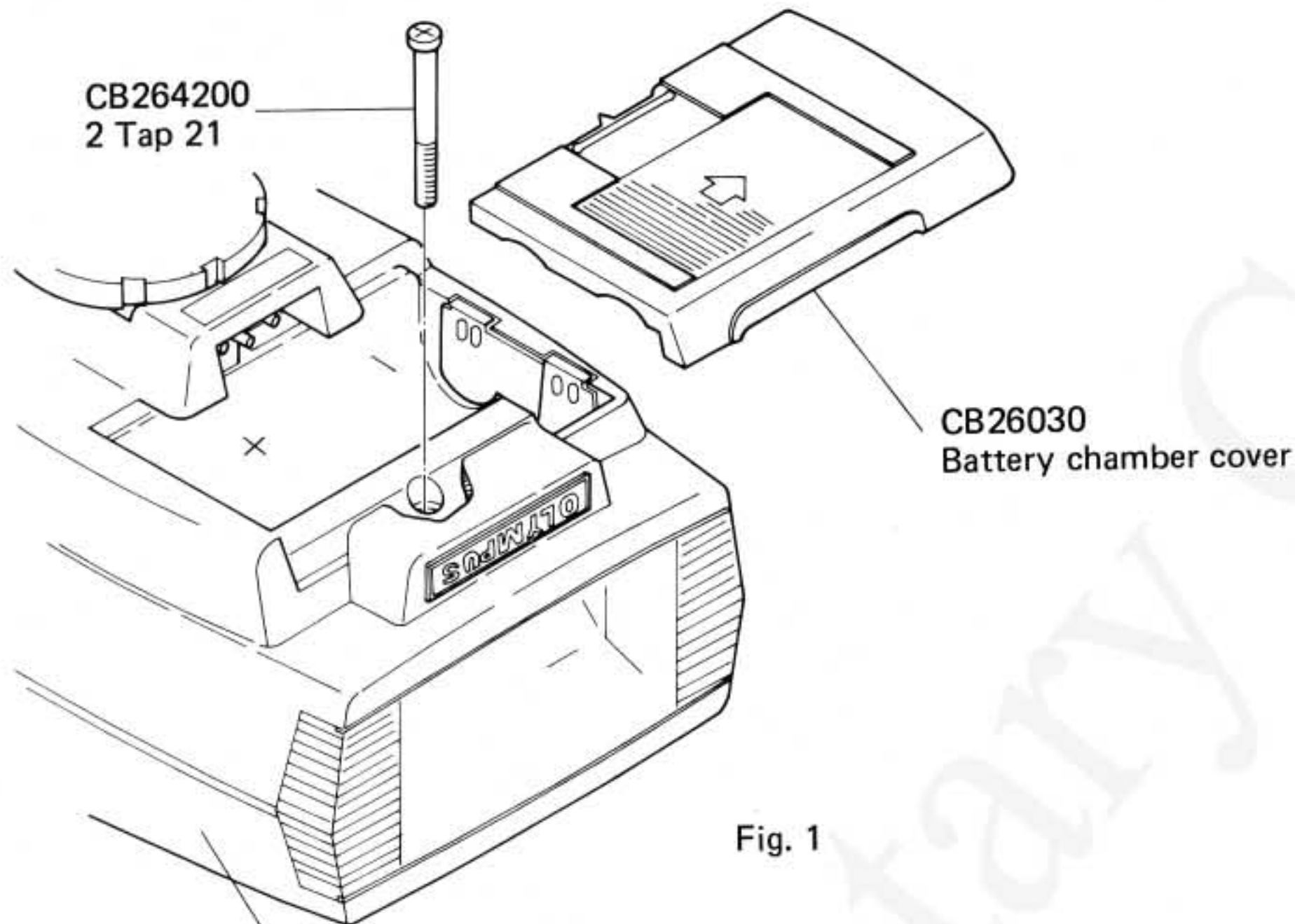
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NOMENCLATURE



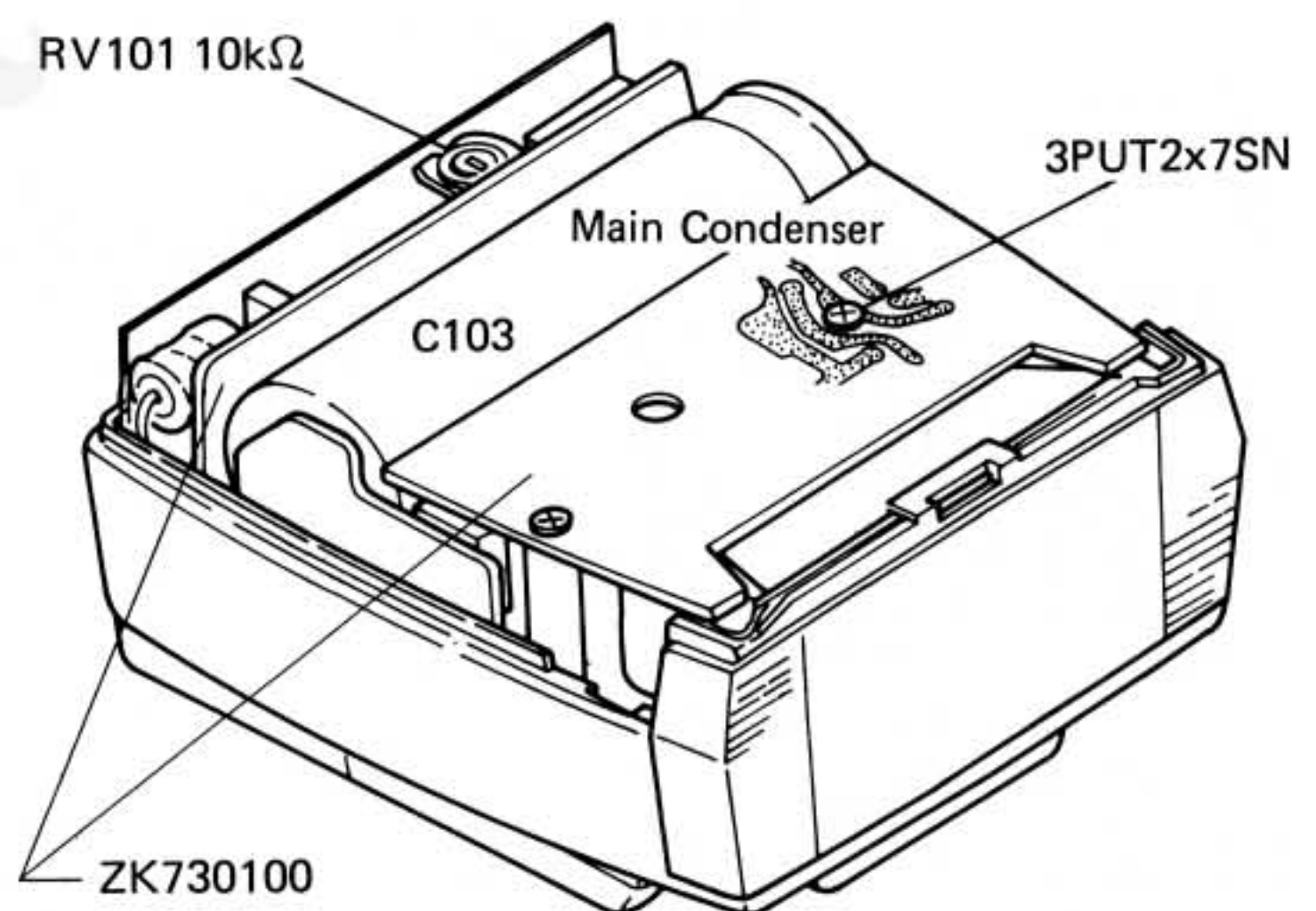
ORDER OF DISASSEMBLY



1. Removing the Upper Cover (CB260200)

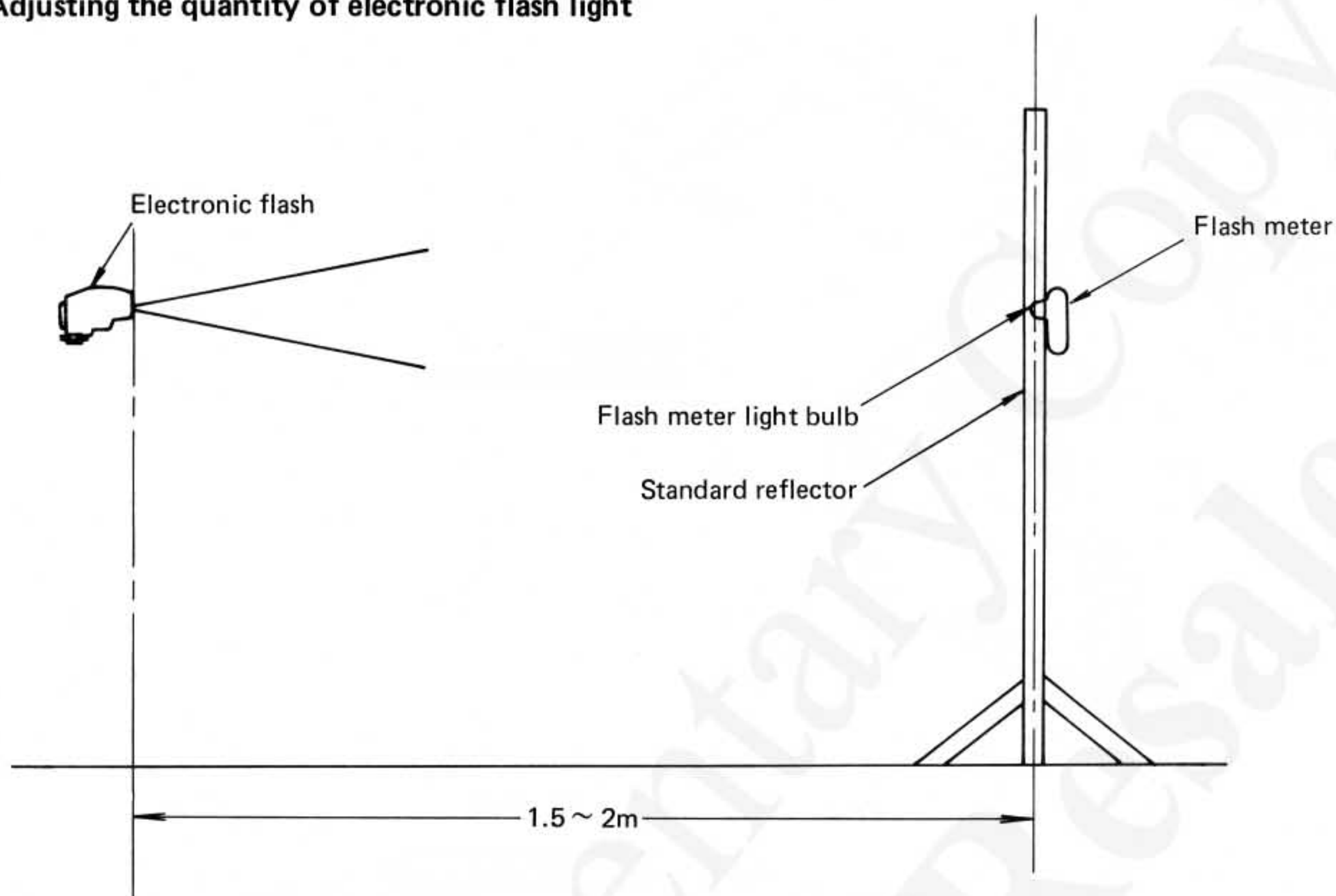
- 1) Remove the battery chamber cover (CB260300). Fig. 1
 - 2) Remove 2 tap 21 (CB264200). Fig. 1
 - 3) Lightly push the side of the upper cover (CB260200) and remove it. Fig. 2
- With this operation, the upper cover removal is complete, and now the following operations can be done.
- a. Adjustment of quantity of light (Refer to "Adjustments.")
 - b. Checking of circuit board (ZK730100)

Note: A high surge of voltage is stored in the main condenser (C103). Avoid touching it with your hand during checking the circuit board. It is advisable to use the discharge tool (KC0054), as required.

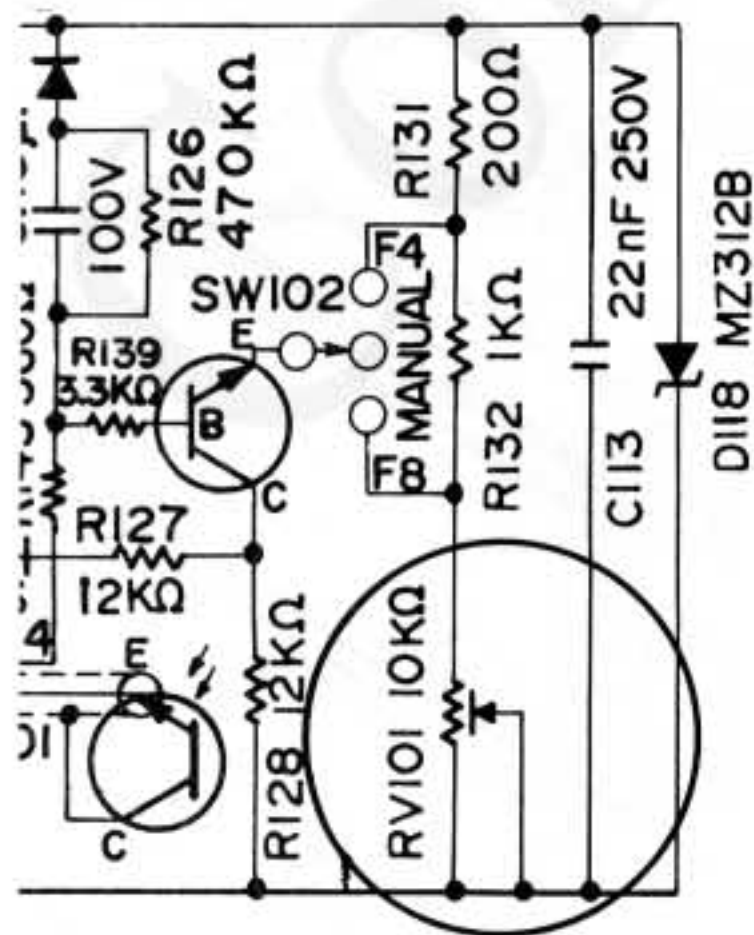


ADJUSTMENT

1. Adjusting the quantity of electronic flash light



- 1) Install the flash meter on the standard reflector.
- 2) Position the electronic flash in a position 2 meters off the standard reflector and on the same level as the flash meter light bulb.
- 3) Set "F No." to F4 or F8 with the mode selector knob in electronic flash.
- 4) Turn the power switch of electronic flash to ON, and flash the light 30 seconds after the charge lamp has lit on.
- 5) Adjust the variable resistor (RV101 10k Ω) so that the flash meter reads the F No. (F4 or F8) set in 3) above.



Electronic flash F No.	Flash meter F No.
F4	F4
F8	F8

PARTS LIST (1)

Parts No.	Name of Parts	Note	Q'ty used/ per unit	Parts No.	Name of Parts	Note	Q'ty used/ per unit
BB300200	LW stopper B	① C3	3	DC0007	V. Resistor	10k Ω 0.1W	1
				DC0008	L coil	② 250V	1
				DC0009	Switch	① 60 ~ 80V	1
CB254200	Support rubber	A1 · B2	2	DC0010	Switch	②	1
CB260200	Upper cover	B1	1	DC0011	22 shield		1
CB260300	Battery chamber cover	A3	1	DC0012	22 L shield	①	1
CB260400	Scatter plate	A2	1				
CB260500	Reflex box	A2	1	EC0001	Diode	② 1A 1000V	1
CB260600	Name plate	A3	1	EC0004	Thyristor	② 0.3A 300V	3
CB260700	Front plate	A2	1	EC0005	Photo transistor	100 \times 75~150 μ A	1
CB260800	Shoe mount	① C4	1	EC0007	Arrestor	② 20WS	1
CB260900	Shoe	① C4	1	EC0008	Neon lamp	② 250V \pm 10V	1
CB261000	Lock knob	① C4	1	EC0009	Neon lamp	② 60 ~ 80V	1
CB261100	Negative plate	① C3	1	EC0010	Diode	② 120mA 30V	6
CB261200	Positive plate	① C4	1	EC0011	Zenner D	② 500mW 5V	1
CB261300	TTL plate	① B4	2	EC0012	Thyristor	480 μ F 150A	1
CB261400	Positive plate spring	① C4	1	EC0013	Xe lamp	28WS	1
CB261500	TTL spring	① B4	2	EC0015	Diode	② 1A 400V	11
CB261600	Lift pin	① B4	1	EC0016	Zenner D	② 500mW 12V	2
CB261900	Plate holder	① C2	1				
CB262000	Sensor holder	B3	1	KC1005	Condenser	② 15nF 250V	1
CB262100	Battery contact A	① B3	1	KC1009	Condenser	② 47nF 250V	3
CB262200	Battery contact B	① C2	1	KC1011	Condenser	② 220 μ F 6.3V	1
CB262300	Battery contact C	① B3	1	KC1012	Condenser	② 47nF 6.3V	1
CB262400	Neon window	① C3	1	KC1013	Condenser	450 μ F 330WV	1
CB262600	Shoe board	① C3	1	KC1015	Condenser	2.2 μ F 250WV	1
CB262700	Radiator	② B2	1	KC1016	Condenser	② 22nF 250V	2
CB262800	Mode knob	① D3	1	KC1017	Condenser	② 0.15 μ F 100V	2
CB262900	Mode spring	① A3	1	KC1018	Condenser	② 0.1 μ F 100V	1
CB263000	Lock button	① C2	1	KC1019	Condenser	② 0.1 μ F 250V	1
CB263100	Lock spring	① C2	1	KC1020	Condenser	② 47nF 400V	2
CB263200	Mode spring	C3	1	KC1021	Condenser	② 33nF 250V	2
CB263700	Name plate	D3	1	KC1024	Condenser	② 0.33 μ F 250V	1
CB263800	SW plate	① C2	1				
CB264000	Plate 22	B4	1	QC0006	Transistor	② 2SA608SP	4
CB264100	C insulator	C2	1	QC0007	Transistor	② 2SC536SP	3
CB264200	2 tap 21	C3	1	QC0008	Transistor	② 2SD826	1
CB264300	Filter	① A3	1	QC0009	Transistor	② 2SC2270	0~1
CB264400	SW board	① B2	1	QC0010	FET	② 2SK118-R	1
CB264800	DC seal	B4	1				
DC0003	T transformer	BA-2050-3	1				
DC0005	M transformer	KA-13	1				
DC0006	T transformer	KC-4	1				

PARTS LIST (2)

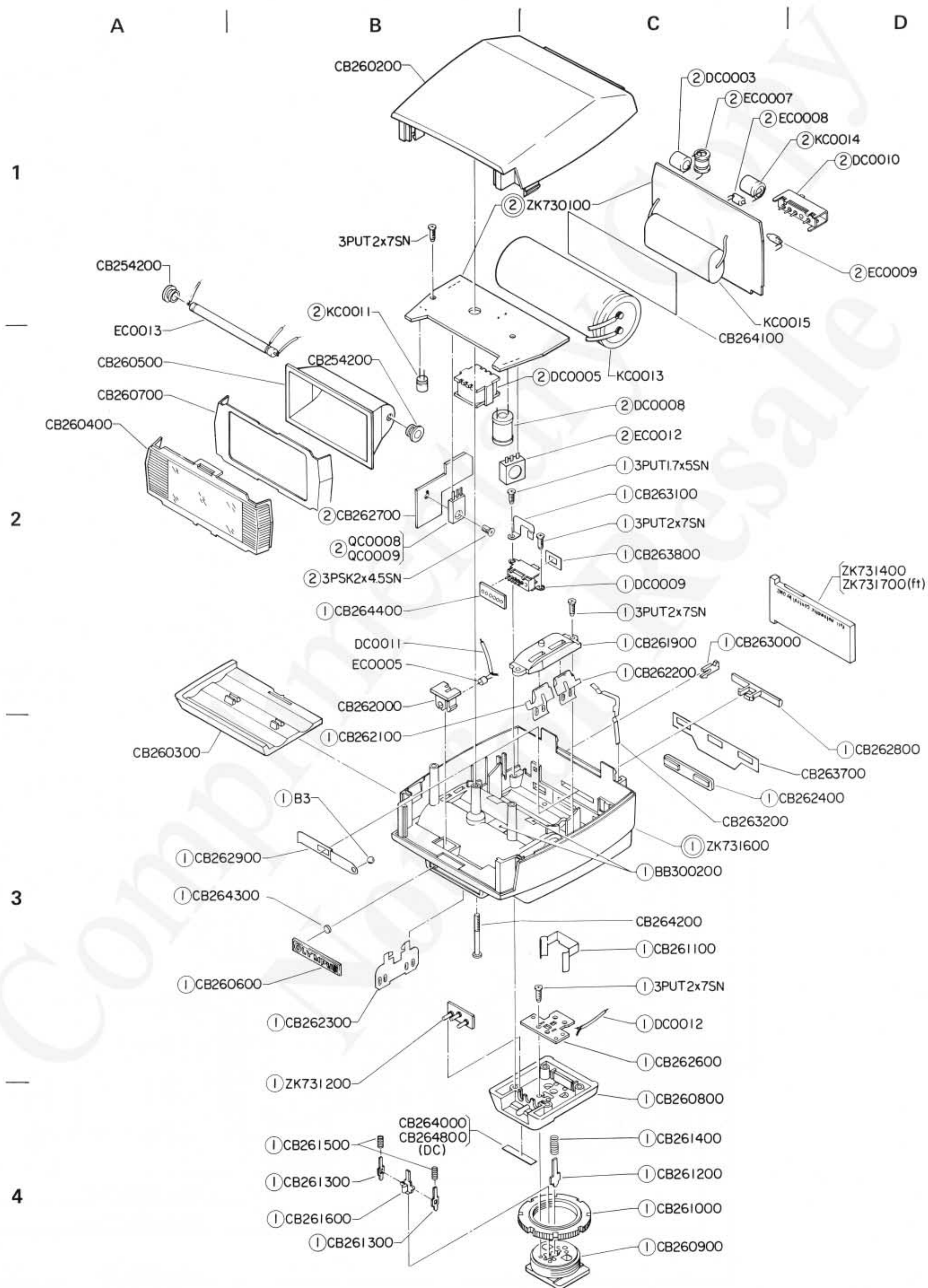
Parts No.	Name of Parts	Note	Q'ty used/ per unit	Parts No.	Name of Parts	Note	Q'ty used/ per unit
ZK730100	Base plate	② C1	1				
ZK731200	AC pin	① B3	1				
ZK731400	Calculator plate	D2	1				
ZK731600	Lower body	① C3	1				
ZK731700	Calculator plate	D2 (ft-T)	1				
3PSK	2 x 4.5SN	②	1				
3PUT	2 x 7SN	①	12				
3PUT	1.7 x 5SN	①	1				
B	3	①	1				

COMPARISON LIST OF ITEM NO. AND PART NO. FOR ELECTRICAL PARTS

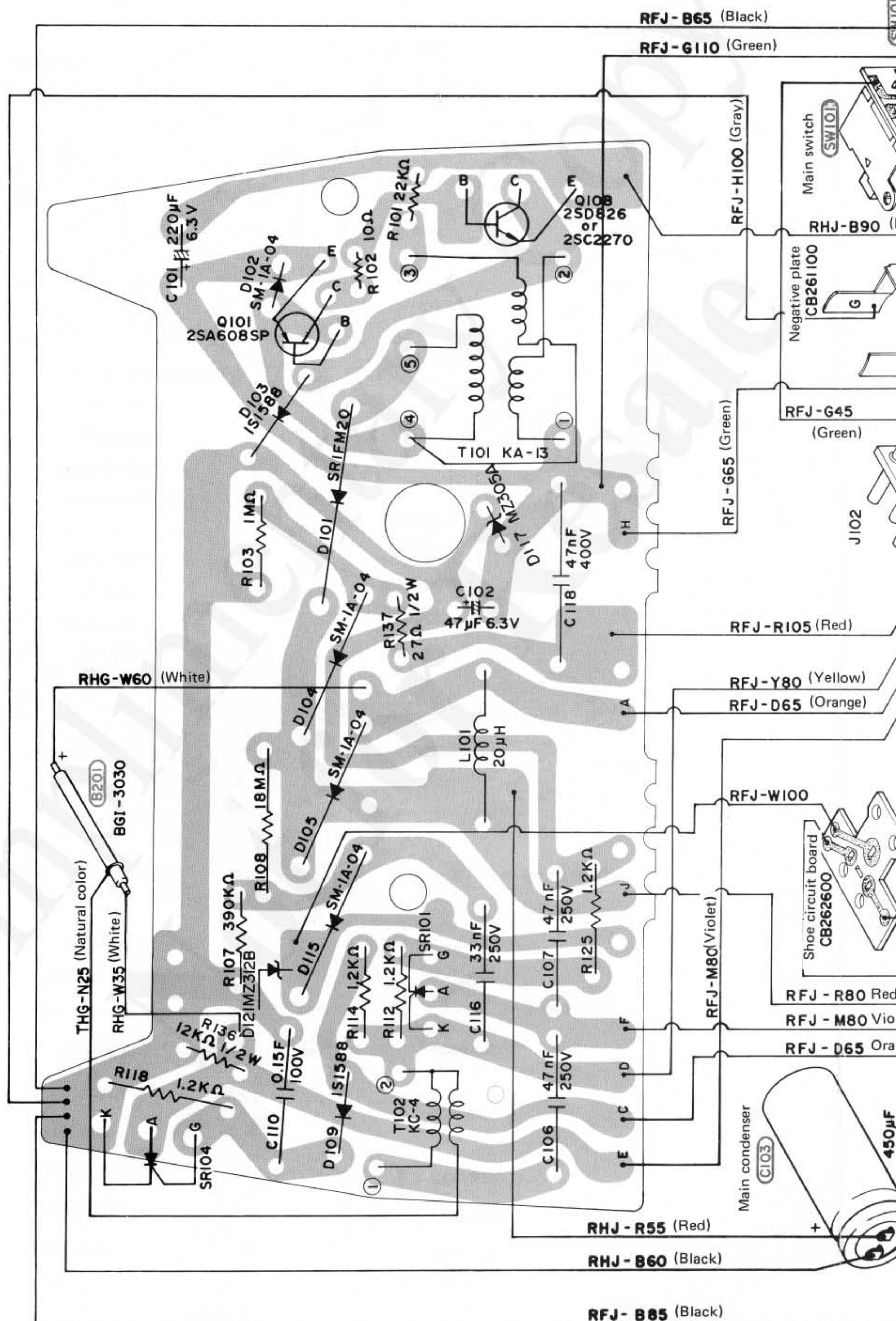
Item No.	Parts No.	Item No.	Parts No.	Item No.	Parts No.	Item No.	Parts No.
B 101	EC0008	J 101	Shoe connector				
B 102	EC0009	J 102	AC jack				
B 201	EC0013						
B 202	EC0007	K 101	DC0011				
		K 102	DC0012				
C 101	KC1011						
C 102	KC1012	L 101	DC0008				
C 103	KC1013						
C 104	KC1014	P 101	EC0005				
C 105	KC1015						
C 106	KC1009	Q 101	EC0005				
C 107	KC1009	Q 102	QC0006				
C 108	KC1009	Q 103	QC0006				
C 109	KC1016	Q 104	QC0006				
C 110	KC1017	Q 105	QC0007				
C 111	KC1018	Q 106	QC0007				
C 112	KC1020	Q 107	QC0007				
C 113	KC1016	*Q 108	QC0008				
C 114	KC1019	*Q 108	QC0009				
C 115	KC1017	Q 109	QC0010				
C 116	KC1021						
C 117	KC1021	RV101	DC0007				
C 118	KC1020						
C 119	KC1005	SR101	EC0004				
		SR102	EC0004				
D 101	EC0001	SR103	EC0004				
D 102	EC0015	SR104	EC0012				
D 103	EC0010						
D 104	EC0015	SW101	DC0009				
D 105	EC0015	SW102	DC0010				
D 106	EC0015						
D 107	EC0010	T 101	DC0005				
D 108	EC0015	T 102	DC0006				
D 109	EC0010	T 103	DC0003				
D 110	EC0010						
D 111	EC0015						
D 112	EC0015						
D 113	EC0015						
D 114	EC0015						
D 115	EC0015						
D 116	EC0010						
D 117	EC0011						
D 118	EC0016						
D 119	EC0010						
D 120	EC0015						
D 121	EC0016						
E 101	Battery						

* Alternative parts

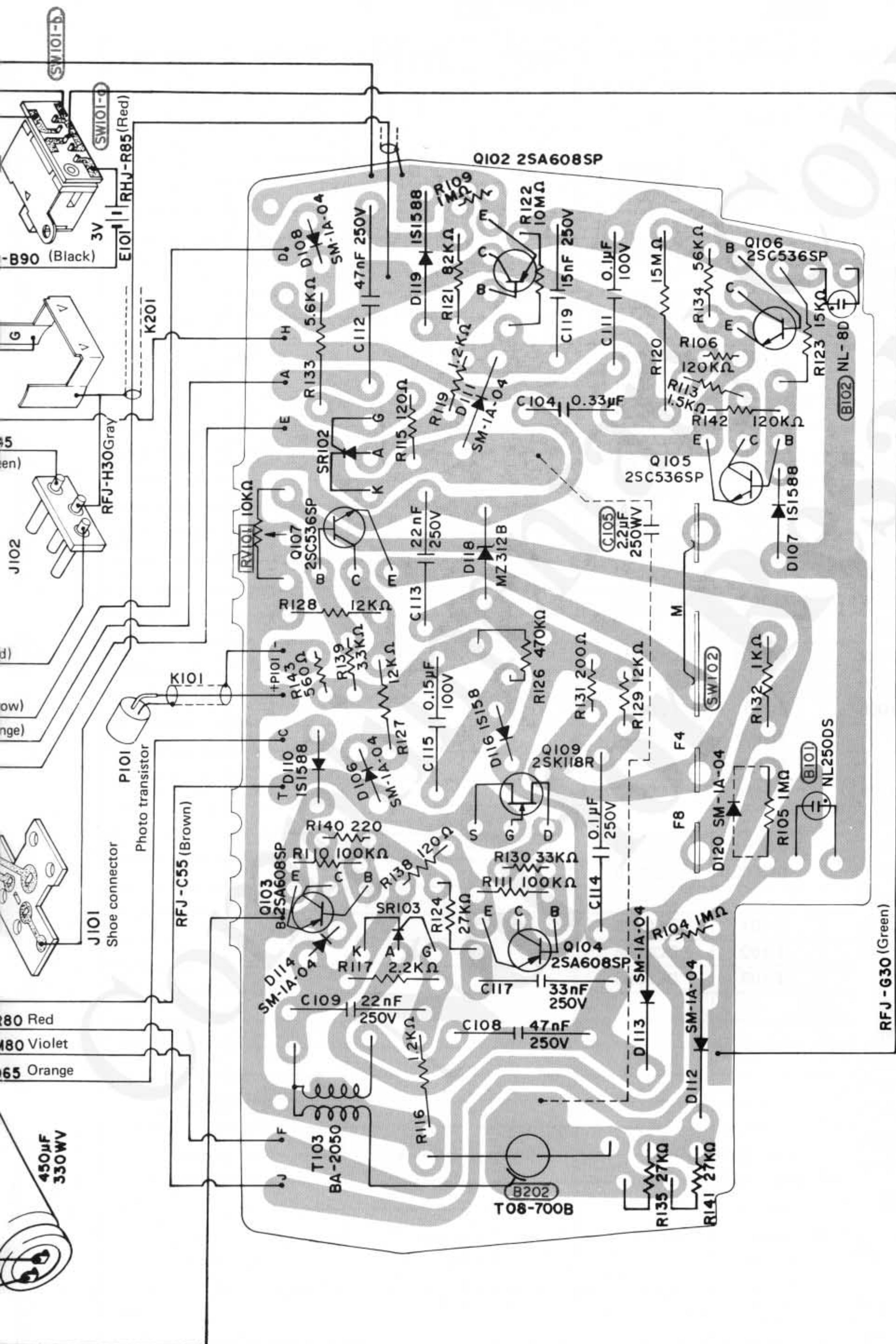
EXPLODED PARTS DIAGRAM



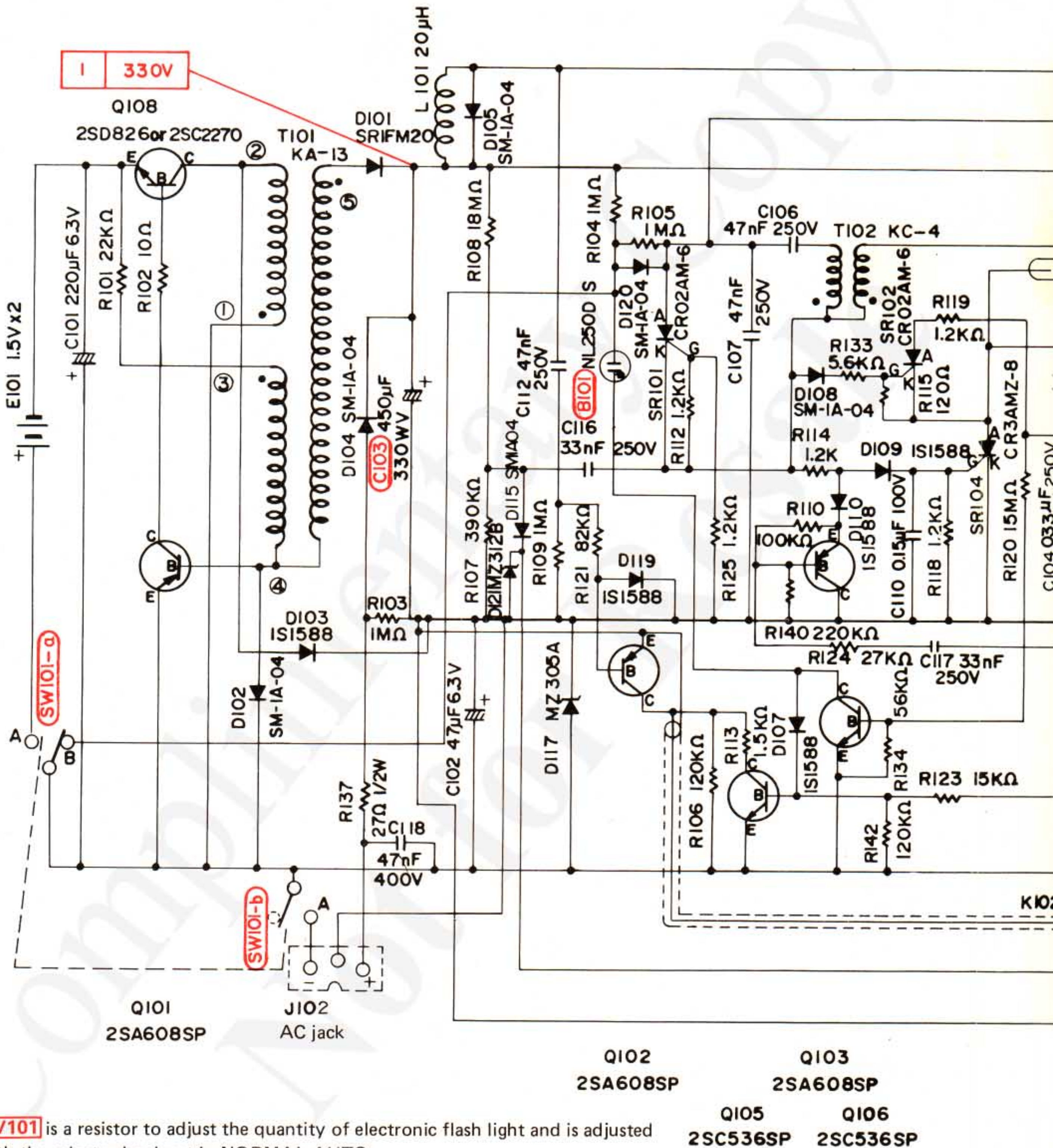
WIRING D



G DIAGRAM



CIRCUIT DIAG



Note: 1. **RV101** is a resistor to adjust the quantity of electronic flash light and is adjusted with the selector knob set in NORMAL-AUTO.

2. **SW101-a** is the main switch for internal power source and interlocked with SW101-b. When it is turned off, B101 (neon lamp for charging) is connected to the (-) and goes off. The diagram indicates the power switch turned off.

3. **SW101-b** is the external power switch and interlocked with SW101-a. The diagram indicates the power switch turned off.

4. **SW102** is the mode selector switch. The diagram indicates the switch set to MANUAL.

5. **B101** is the charge neon lamp.

6. **B102** is the auto-check neon lamp.

7. **B210** is the light discharge tube.

8. **B202** is the arrestor serving as a switch for C105. (commutation capacitor)

9. **C103** is the main condenser.

10. **C105** is the commutation capacitor.

CIRCUIT DIAGRAM

